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FINAL NON TIME CRITICAL REMOVAL ACTION AFTER ACTION REPORT SOLID WASTE
MANAGEMENT UNIT 4 (SWMU 4) ATLANTIC FLEET WEAPONS TRAINING AREA FORMER
NAVAL AMMUNITION SUPPORT DETACHMENT VIEQUES ISLAND PUERTO RICO

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CH2M HILL

Final

**Solid Waste Management Unit 4
Non-Time-Critical Removal Action
After Action Report**

**Atlantic Fleet Weapons Training Area—Vieques
Former Naval Ammunition Support Detachment
Vieques, Puerto Rico**

Contract Task Order 019

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Prepared for

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Prepared by

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Executive Summary

Solid Waste Management Unit (SWMU) 4, located at the former Naval Ammunition Support Detachment (NASD) in the western portion of Vieques, Puerto Rico, was used for the thermal and explosive destruction of retrograde and surplus munitions, fuels, and propellants from 1969 through 1979 and may have periodically been used as far back as the late 1940s. These open burn/open detonation (OB/OD) activities likely resulted in ejection of munitions and explosives of concern (MEC) and related debris from the OB/OD locations to the surrounding area.

This After Action Report (AAR) documents the completion of the munitions removal part of the Non-Time-Critical Removal Action (NTCRA) conducted in 2015 to reduce the explosive hazard associated with potential MEC/material potentially presenting an explosive hazard (MPPEH) at SWMU 4. The NTCRA is intended to facilitate near-term public access to portions of the site and will ultimately support the final remedy selection for the site under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process.

The NTCRA was implemented in accordance with the *Non-Time Critical Interim Removal Action Work Plan, Former Open Burn/Open Detonation Site, Solid Waste Management Unit 4 (SWMU 4), Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico* (CH2M, 2014b), as illustrated in **Figure ES-1**. The only portion of the NTCRA not yet implemented is installation of warning signs and educational kiosks, but the munitions-removal element of the NTCRA has been completed. As stated in the NTCRA Work Plan, the signs and kiosks will be installed once United States Fish and Wildlife Service (USFWS) prepares the roads, picnic/parking areas, and entrances for public access.

The NTCRA focused on the following four areas:

- OB/OD locations and observation tower area
- Planned parking and picnic areas
- Lagoon fringe area
- Investigation “spokes” area

The NTCRA at SWMU 4 conducted in 2015 accomplished the following:

- Munitions removal within an area of approximately 54 acres
- 79,620 MPPEH were recovered and processed. The MPPEH comprised:
 - 6,270 MEC, 94 percent of which were 20-millimeter (mm) projectiles
 - 66,786 munitions debris (MD)
 - 6,564 range related debris (RRD)

Resumen Ejecutivo

La Unidad de Manejo de Desperdicios Sólidos (SWMU, por sus siglas en inglés) 4, localizada en el antiguo Destacamento de Apoyo a Municiones Navales (NASD, por sus siglas en inglés) en la porción oeste de Vieques, Puerto Rico, fue usado para la destrucción térmica y explosiva de municiones, combustibles o propelentes sobrantes o retrógrados desde el 1969 hasta el 1979 y puede haber sido usado periódicamente desde finales de los 1940s. Estas actividades de quema abierta/detonación abierta (OB/OD, por sus siglas en inglés) posiblemente resultaron en la expulsión de municiones y explosivos de preocupación (MEC, por sus siglas en inglés) y escombros relacionados desde las localizaciones de OB/OD hacia las áreas adyacentes.

Este Informe Luego de la Acción (AAR, por sus siglas en inglés) documenta la finalización de la fase de la remoción de la Acción de Remoción de Tiempo No Crítico (NTCRA, por sus siglas en inglés) llevada a cabo en el 2015 para reducir el peligro de explosión asociado con MEC/material potencial el cual potencialmente presenta un peligro de explosión (MPPEH, por sus siglas en inglés) en SWMU 4. El propósito del NTCRA es facilitar el acceso del público a corto plazo a porciones del sitio y últimamente apoyará la selección del remedio final para el sitio bajo el proceso de la Ley de Respuesta, Compensación y Responsabilidad Ambiental (CERCLA, por sus siglas en inglés).

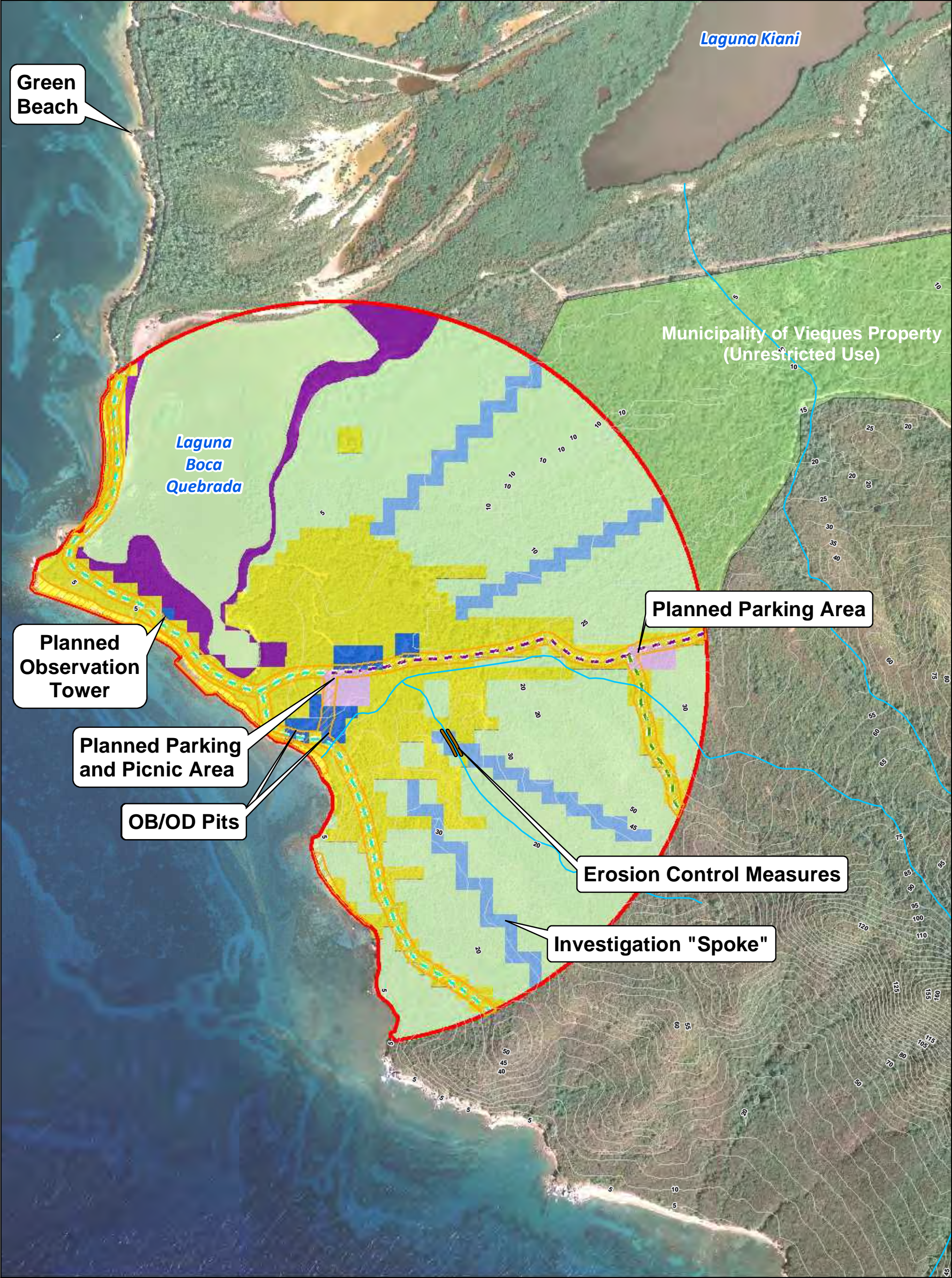
La NTCRA fue implementada de acuerdo al *Plan de Trabajo para la Acción de Remoción Interina de Tiempo No Crítico, Antiguo Sitio de Quema Abierta/Detonación Abierta, Unidad de Manejo de Desperdicios Sólidos 4 (SWMU 4), Área de Entrenamiento con Armas de la Flota del Atlántico – Vieques, Antiguo Destacamento de Apoyo a Municiones Navales, Vieques, Puerto Rico* (CH2M, 2014b), como se ilustra en la **Figura ES-1**. La única porción de la NTCRA que todavía no se ha implementado es la instalación de los letreros de advertencia y los kioscos educativos, pero el elemento de remoción de municiones de la NTCRA ha sido completado. Como se indica en el Plan de Trabajo de la NTCRA, los letreros y kioscos serán instalados cuando el Servicio de Pesca y Vida Silvestre de los EE.UU. prepare los caminos, áreas de estacionamiento/merenderos, y entradas para acceso del público.

La NTCRA se enfocó en las siguientes cuatro áreas:

- Localizaciones de los OB/OD y área de la torre de observación
- Áreas planificadas para estacionamiento y merenderos
- Área del borde de la laguna
- Área de “radios” de investigación

La NTCRA en SWMU 4 llevada a cabo en el 2015 cumplió con lo siguiente:

- Remoción de municiones dentro de un área de aproximadamente 54 acres
- 79,620 MPPEH fueron recuperados y procesados. Las MPPEH consistieron de:
 - 6,270 MEC, 94 por ciento de los cuales fueron proyectiles de 20-milímetros (mm)
 - 66,786 escombros de municiones (MD, por sus siglas en inglés)
 - 6,564 escombros relacionados al campo (RRD, por sus siglas en inglés)



- Legend**
- SWMU 4 Boundary
 - Area of Erosion Control Measures
 - Ephemeral Stream
 - Topographic Contour (5 meters)
 - Planned Vehicle Road
 - Planned Hiking/Biking Trail
 - Planned Hiking/Bird Watching Trail
 - OB/OD Pits and Observation Tower Area - 6 acres
 - Parking and Picnic Areas - 5 acres
 - Investigation Spoke Area - 24 acres
 - Lagoon Fringe Area - 19 acres
 - Areas Previously Surface Cleared of MEC (111 acres)
 - Areas Previously Subsurface Cleared of MEC (24 acres)
 - Dense Vegetation

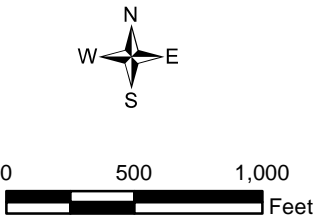


Figure ES-1
Completed NTCRA Activities
SWMU 4 NTCRA After Action Report
Atlantic Fleet Weapons Training Area - Vieques
Former Naval Ammunition Support Detachment
Vieques, Puerto Rico

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Acronyms and Abbreviations

| | |
|--------|---|
| AAR | After Action Report |
| BE | Biological Evaluation |
| bgs | below ground surface |
| CD | cultural debris |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CIP | Community Involvement Plan |
| CLEAN | Comprehensive Long-term Environmental Action—Navy |
| CPC | Central Processing Center |
| DBH | diameter at breast height |
| DGM | digital geophysical mapping |
| DoD | Department of Defense |
| EE/CA | Engineering Evaluation/Cost Analysis |
| EPA | Environmental Protection Agency |
| ERP | Environmental Restoration Program |
| ESS | Explosives Safety Submission |
| IC | institutional control |
| MD | munitions debris |
| MDAS | material documented as safe |
| MEC | munitions and explosives of concern |
| mm | millimeter |
| MPPEH | material potentially presenting an explosive hazard |
| MRA | Munitions Response Area |
| NASD | Naval Ammunition Support Detachment |
| NAVFAC | Naval Facilities Engineering Command |
| NEW | net explosive weight |
| NTCRA | Non-Time-Critical Removal Action |
| OB/OD | open burn/open detonation |
| PRDNER | Puerto Rico Department of Natural and Environmental Resources |
| PREQB | Puerto Rico Environmental Quality Board |
| QA | quality assurance |
| QC | quality control |
| RAB | Restoration Advisory Board |
| RAO | removal action objective |
| RCRA | Resource Conservation and Recovery Act |
| RI | Remedial Investigation |
| ROD | Record of Decision |
| RRD | range-related debris |
| SOP | Standard Operating Procedure |
| SWMU | Solid Waste Management Unit |
| USACE | United States Army Corps of Engineers |
| USAE | USA Environmental, Inc. |
| USFWS | United States Fish and Wildlife Service |

| | |
|------|------------------------------|
| UXO | unexploded ordnance |
| VNTR | Vieques Naval Training Range |
| WAD | Work Area Determination |

Introduction

Solid Waste Management Unit (SWMU) 4, located on the former Naval Ammunition Support Detachment (NASD) in the western portion of Vieques, Puerto Rico, is approximately 450 acres and is known as the former Open Burn/Open Detonation (OB/OD) Site. It was used for the thermal destruction of retrograde and surplus munitions, fuels, and propellants from 1969 through 1979 and may have periodically been used as far back as the late 1940s. These OB/OD activities likely resulted in ejection of munitions and explosives of concern (MEC) and related debris from the OB/OD locations to the surrounding area.

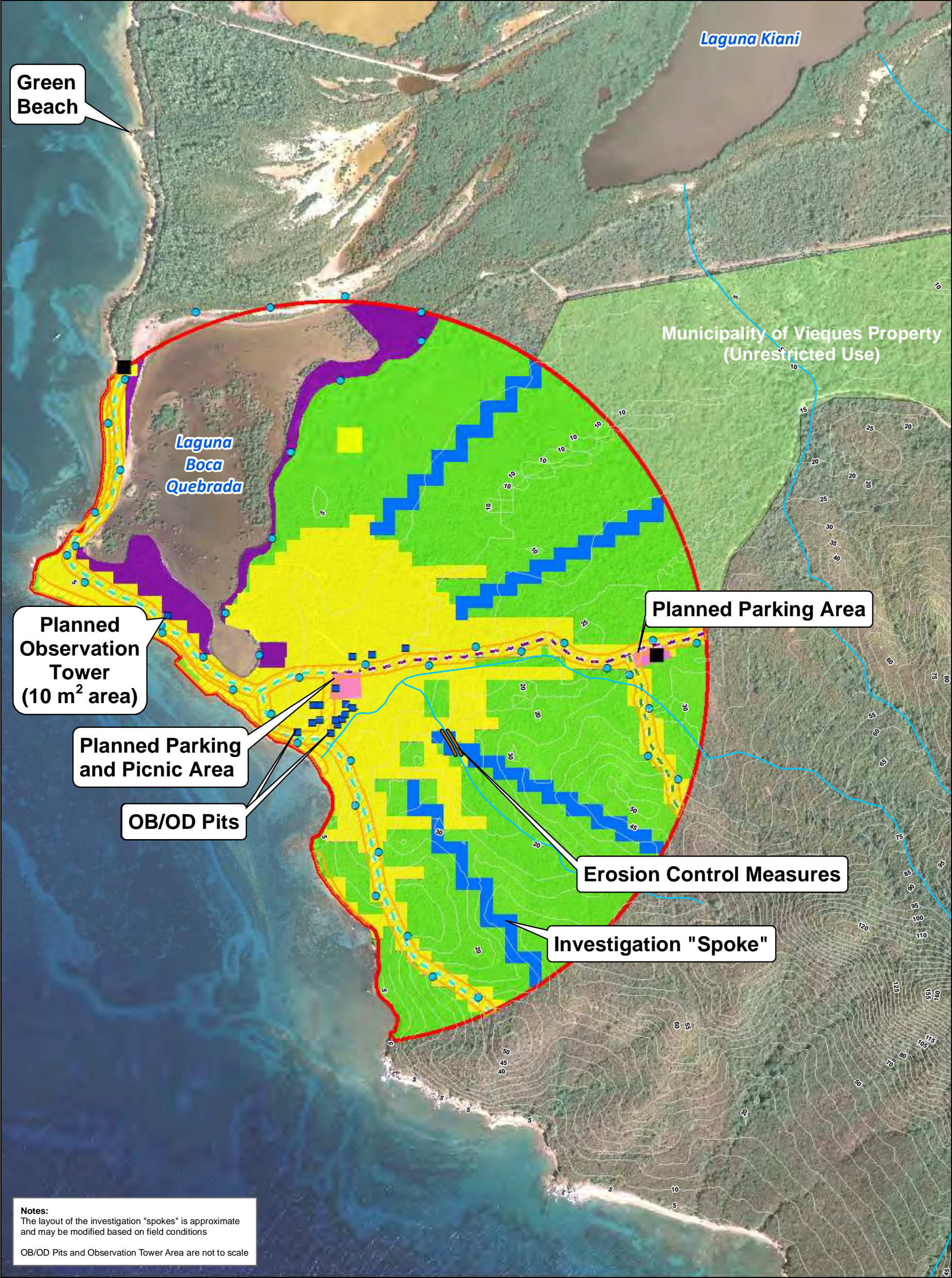
This After Action Report (AAR) documents the completion of the munitions removal part of the Non-Time-Critical Removal Action (NTCRA) conducted to reduce the explosive hazard associated with potential MEC/material potentially presenting an explosive hazard (MPPEH) at SWMU 4. The NTCRA is intended to facilitate near-term public access to portions of the site and will ultimately support the final remedy selection for the site under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. The AAR was prepared under the Naval Facilities Engineering Command (NAVFAC), Atlantic, Comprehensive Long-term Environmental Action—Navy (CLEAN) 8012 Contract N62470-11-D8012, Contract Task Order 019, for submittal to NAVFAC, the Environmental Protection Agency (EPA) Region 2, the Commonwealth of Puerto Rico Environmental Quality Board (PREQB), Puerto Rico Department of Natural and Environmental Resources (PRDNER), and United States Fish and Wildlife Service (USFWS). NAVFAC, EPA, PREQB, PRDNER, and USFWS work jointly as the Vieques Environmental Restoration Technical Subcommittee.

The NTCRA corresponds to Alternative 3, documented in the *Engineering Evaluation/Cost Analysis for a Non-Time-Critical Removal Action at SWMU 4, Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico* (CH2M, 2014a), as presented for public comment, and authorized in the associated Action Memorandum (NAVFAC, 2015). Alternative 3 included munitions clearance from the following areas:

- OB/OD area and planned observation tower area (removal to maximum depth of anomaly detection)
- Planned parking and picnic areas (removal to a maximum depth of 2 feet)
- Lagoon fringe area (removal to a maximum depth of 1 foot)

Although not part of Alternative 3, the NTCRA included munitions removal from an investigation “spokes” area to a maximum depth of 1 foot. The NTCRA was implemented in accordance with the *Amendment 3, Explosives Safety Submission for Former Vieques Naval Training Range (VNTR) and the Former Naval Ammunition Support Detachment (NASD), Vieques, Puerto Rico* (CH2M, 2014c) and the *Non-Time Critical Interim Removal Action Work Plan, Former Open Burn/Open Detonation Site, Solid Waste Management Unit 4 (SWMU 4), Atlantic Fleet Weapons Training Area – Vieques, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico* (CH2M, 2014b), as illustrated in **Figure 1-1**. The only portion of the NTCRA not yet implemented is installation of warning signs and educational kiosks. As stated in the NTCRA Work Plan, the signs and kiosks will be installed once USFWS prepares the roads, picnic/parking areas, and entrances for public access.

This AAR has been prepared in accordance with the *Department of Defense (DoD)/EPA Joint Guidance on Streamlined Site Closeout and NPL Deletion Process for DoD Facilities* (DoD/EPA, 2006). In order to help expedite the review of this AAR, the appropriate and relevant information from historical documents has been summarized, with references to those documents.



Legend

- | | | |
|----------------------------------|------------------------------------|---|
| SWMU 4 Boundary | Planned Vehicle Road | 0.5 acre OB/OD Pit and Observation Tower Area |
| Planned Signage | Planned Hiking/Biking Trail | 18.5 - acre Lagoon Fringe Area |
| Planned Informational Kiosk | Planned Hiking/Bird Watching Trail | 2 - acre Planned Parking and Picnic Areas |
| Area of Erosion Control Measures | | 30 - acre Investigation "Spoke" Area |
| Ephemeral Stream | | Areas Previously Surface Cleared of MEC (111 acres) |
| Topographic Contour (5 meters) | | Areas Previously Subsurface Cleared of MEC (24 acres) |
| | | Dense Vegetation |

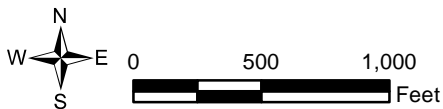


Figure 1-1
Planned NTCRA Activities
SWMU 4 NTCRA After Action Report
Atlantic Fleet Weapons Training Area - Vieques
Former Naval Ammunition Support Detachment
Vieques, Puerto Rico

Site Description and Background

2.1 Site Description and Background

The historical information pertinent to and providing the rationale for the NTCRA covered by this AAR is summarized below. The information is extracted from and can be found in more detail in the *Remedial Investigation/Feasibility Study Report, Solid Waste Management Unit 4 (SWMU 4), Former Naval Ammunition Support Detachment, Vieques, Puerto Rico* (CH2M, 2012) and the *Site Management Plan, Fiscal Year 2016, Atlantic Fleet Weapons Training Area – Vieques, Vieques, Puerto Rico* (CH2M, 2015).

2.2 Remedial Investigation

The MEC/MPPEH component of the SWMU 4 Remedial Investigation (RI) provided information on the nature and extent of MEC/MPPEH across SWMU 4. The MEC/MPPEH component of the RI was conducted from January 2002 through July 2003 across approximately 87 acres of SWMU 4, whereby surface clearance followed by digital geophysical mapping (DGM) and excavating DGM anomalies were conducted. The RI also identified 16 OB/OD locations.

2.3 NTCRA for the Roads and Beaches

An NTCRA was initiated at SWMU 4 in September 2009 across approximately 24 acres of roadways and beaches to reduce the explosive hazard associated with surface and subsurface MEC/MPPEH in those areas. The NTCRA removed MEC/MPPEH from the surface and subsurface along roadways to a maximum depth of approximately 2 feet and from the surface and subsurface along beaches to a maximum depth of approximately 4 feet. Therefore, these areas were not included in the 2015 NTCRA.

SECTION 3

NTCRA Objectives

As stated in the Engineering Evaluation/Cost Analysis (EE/CA) (CH2M, 2014a), the removal action objectives (RAOs) associated with the munitions-removal element of the NTCRA performed in 2015 were:

- Reduce the potential explosive hazard associated with the areas intended for public use
- Reduce the potential hazard associated with the areas likely accessed for land crabbing

As noted previously, the institutional controls (ICs) element of the NTCRA to meet the objective of reducing the potential for unauthorized access to the restricted areas of the site will be implemented once USFWS prepares the roads, picnic/parking areas, and entrances for public access.

To meet the objectives listed above, the removal action took place in the following four areas, identified in **Figure 1-1**:

- OB/OD locations and observation tower area
- Planned parking and picnic areas
- Lagoon fringe area
- Investigation “spokes” area

Removal Action Activities

This section provides the details of the NTCRA MEC/MPPEH clearance activities. Representative photographs of the NTCRA activities are provided in **Appendix A**.

4.1 MEC/MPPEH Removal and Associated Activities

4.1.1 Vegetation Cutting

Prior to vegetation cutting, a Biological Evaluation (BE) was prepared and attached to a Work Area Determination (WAD) to cover the areas in which the NTCRA would take place. The BE identified areas where the NTCRA activities would have no adverse effects on threatened and endangered species and provided measures that would be implemented to avoid potential impacts to threatened and endangered species (*Cobana negra* and Puerto Rican boa) in areas where they may be present. The WAD was submitted to USFWS for their review on July 30, 2014, and was approved on October 9, 2014.

Vegetation cutting was performed in advance of the MEC/MPPEH clearance activities. It began on January 16, 2015, and continued throughout the NTCRA as teams moved among the various areas. Vegetation cutting was performed by the munitions removal contractor, USA Environmental (USAE), in accordance with the Vegetation Removal Standard Operating Procedure (SOP MR-1) in the *Master Sampling and Analysis Plan, East Vieques Terrestrial UXO Sites, Former Vieques Naval Training Range, Vieques, Puerto Rico* (CH2M, 2013), with the following modifications/clarifications:

- A Schonstedt GA-52CX magnetometer was used to assist in identifying potential surface MEC/MPPEH items during the vegetation cutting.
- Based on site topography and drainage features, erosion control measures were placed along the portion of a “spoke” that intersects with an ephemeral stream, as shown in **Figure 1-1**. The erosion control measures were placed on both sides of the ephemeral stream.
- Vegetation was cut using the standard vegetation cutting technique applied to NTCRA elsewhere in the VNTR with avoidance of protected species and trees greater than 3-inch diameter at breast height (DBH).

4.1.2 MEC/MPPEH Removal During NTCRA

Planned Parking, Picnic, and Observation Tower Areas

Following vegetation clearance at the eastern planned parking area, western planned parking and picnic area, and planned observation tower area, the areas were subdivided into individual grids, then further divided into individual search lanes approximately 5-feet wide. Along the established search lanes, MEC/MPPEH and debris surface removal was conducted using a Schonstedt GA-52CX magnetometer.

Following surface MEC/MPPEH clearance, subsurface MEC/MPPEH removal was conducted using DGM techniques followed by anomaly excavation. MEC/MPPEH removal at the planned observation tower area was conducted “to depth,” that is, to the total subsurface depth of any subsurface anomaly detected using DGM. MEC/MPPEH removal at the planned parking and picnic areas was conducted to a maximum depth of 2 feet.

The MEC/MPPEH removal activities identified only one MEC at the eastern planned parking area and six MEC at the planned observation tower area; all items were 20-mm projectiles. The MEC/MPPEH removal activities at the western planned parking and picnic area identified a much higher density of MEC due to the close proximity of this area to the OB/OD locations, as shown in **Figure 4-1** and discussed below.

OB/OD Locations

The approximate center of the OB/OD locations were identified using coordinates provided in the RI Report (CH2M, 2012) and the shape of the locations were squared off to provide a conservative estimate of each

OB/OD areal extent in the field. The areas where MEC/MPPEH removal took place are shown on **Figure 4-1**, which demonstrates an area considerably larger than the individual OB/OD locations (and encompassing the western planned parking and picnic areas) was cleared of MEC/MPPEH. Due to the high density of subsurface metallic anomalies in this area, removal was initially conducted using a “mag-and-dig” approach to reduce the number of anomalies such that discrete anomalies could be better identified by DGM and subsequently removed.

The results of the NTCRA in this area demonstrated, as anticipated, the OB/OD locations contained a very high density of metallic anomalies and MEC relative to other areas. Some of the grids associated with the OB/OD locations contained over 200 MEC (**Figure 4-1**).

Investigation “Spokes” Area

MEC/MPPEH removal also took place along approximately 24 acres of “spokes” that may be used for hunting and to further characterize the extent of MEC/MPPEH at SWMU 4. Each spoke was subdivided into individual grids, which were further divided into individual search lanes approximately 5-feet wide. Along the established search lanes, surface removal of MEC/MPPEH and debris was conducted using a Schonstedt GA-52CX magnetometer. MEC/MPPEH subsurface removal was conducted in accordance with the Analog Subsurface Anomaly Removal SOP (CH2M, 2014b) to a maximum depth of 1 foot below ground surface (bgs). If the surface was relatively free of metal debris, the surface and subsurface removal of MEC/MPPEH were conducted concurrently.

Lagoon Fringe

MEC/MPPEH removal along the lagoon fringe was conducted using the same mag-and-dig approach used along the “spokes.” MEC/MPPEH removal was conducted to a maximum depth of 1 foot within the accessible areas (i.e., areas that could be accessed without cutting vegetation) of the lagoon fringe. No MEC was found within the lagoon fringe area.

Summary of the 2015 NTCRA

In summary, the 2015 NTCRA conducted at SWMU 4 accomplished the following:

- Munitions removal within an area of approximately 54 acres
- 79,620 MPPEH were recovered and processed. The MPPEH comprised:
 - 6,270 MEC, 94 percent of which were 20-mm projectiles
 - 66,786 MD
 - 6,564 RRD

All MEC/MPPEH removal activities, including quality control (QC) inspections, were conducted by the Navy’s munitions response contractor, USAE. All quality assurance (QA) inspections were conducted by the Navy’s Title II services contractor, CH2M HILL (CH2M). MEC/MPPEH removal activities passed all QA inspections.

The NTCRA indicated that approximately 94 percent of the MEC identified were 20-mm projectiles. **Figure 4-1** shows the densities (per grid) of the 20-mm projectiles (in black) relative to other MEC (in red) identified and removed during the 2015 NTCRA.

The results of the NTCRA along the spokes and lagoon fringe were compared to the results of an OB/OD model (USACE, 2012) that predicted the maximum “kick-out” distance of MEC from the OB/OD locations (i.e., about 1,700 feet) using a net explosive weight (NEW) of 4,000 lbs. As shown in **Figure 4-1**, the pattern of MEC identified during the NTCRA closely resembles other similar OB/OD units throughout the Navy, showing a high MEC density near the OB/OD locations, with a general decrease in MEC density with distance along the spokes and lagoon fringe. In addition, the maximum extent of the MEC identified was well within the SWMU 4 site boundary, as predicted by the model. In fact, only four MEC were identified beyond the projected extent of MEC OB/OD kick-out, three of which were within about 100 feet of the projected extent. The fourth was found immediately adjacent to the road; its presence at that location is likely the result of road grading activities rather

than kick-out. While statistical analysis would not provide a reliable estimate of how many items are beyond the predicted extent, the similarity of the predicted extent to the actual findings suggests that few if any additional items would be found significantly beyond the predicted extent.

4.1.3 MEC/MPPEH Handling

All items recovered during the surface and subsurface removal were handled in accordance with the Explosives Safety Submission (ESS) (CH2M, 2014c) and the NTCRA Work Plan (CH2M, 2014b). Details of the procedures are provided below:

- One MEC, a 106-mm projectile fuze, was determined to be unsafe to move. As a result, it was destroyed at SWMU 4 in a blow-in place detonation on October 14, 2015.
- The remaining MEC identified were safe to move and were transported by boat to the former VNTR, where the material was destroyed by consolidation detonations. The consolidated detonation events occurred on June 5, 2015, June 12, 2015, October 14, 2015, November 5, 2015, and November 6, 2015.
- Metallic debris (i.e., MD, RRD, and cultural debris [CD]) confirmed via visual inspection by two appropriately qualified unexploded ordnance (UXO) technicians and determined not to pose an explosive hazard was transported to the VNTR and consolidated at the Central Processing Center (CPC). These metallic items will be further inspected to assess if demilitarization is required. In addition, the material will be placed in a sealed container for off-site disposal at a metal recycling facility. Chain-of-custody documentation, certifying the “material documented as safe (MDAS)” will be included with the shipments as required by the Resource Conservation and Recovery Act (RCRA).

4.1.4 Demobilization

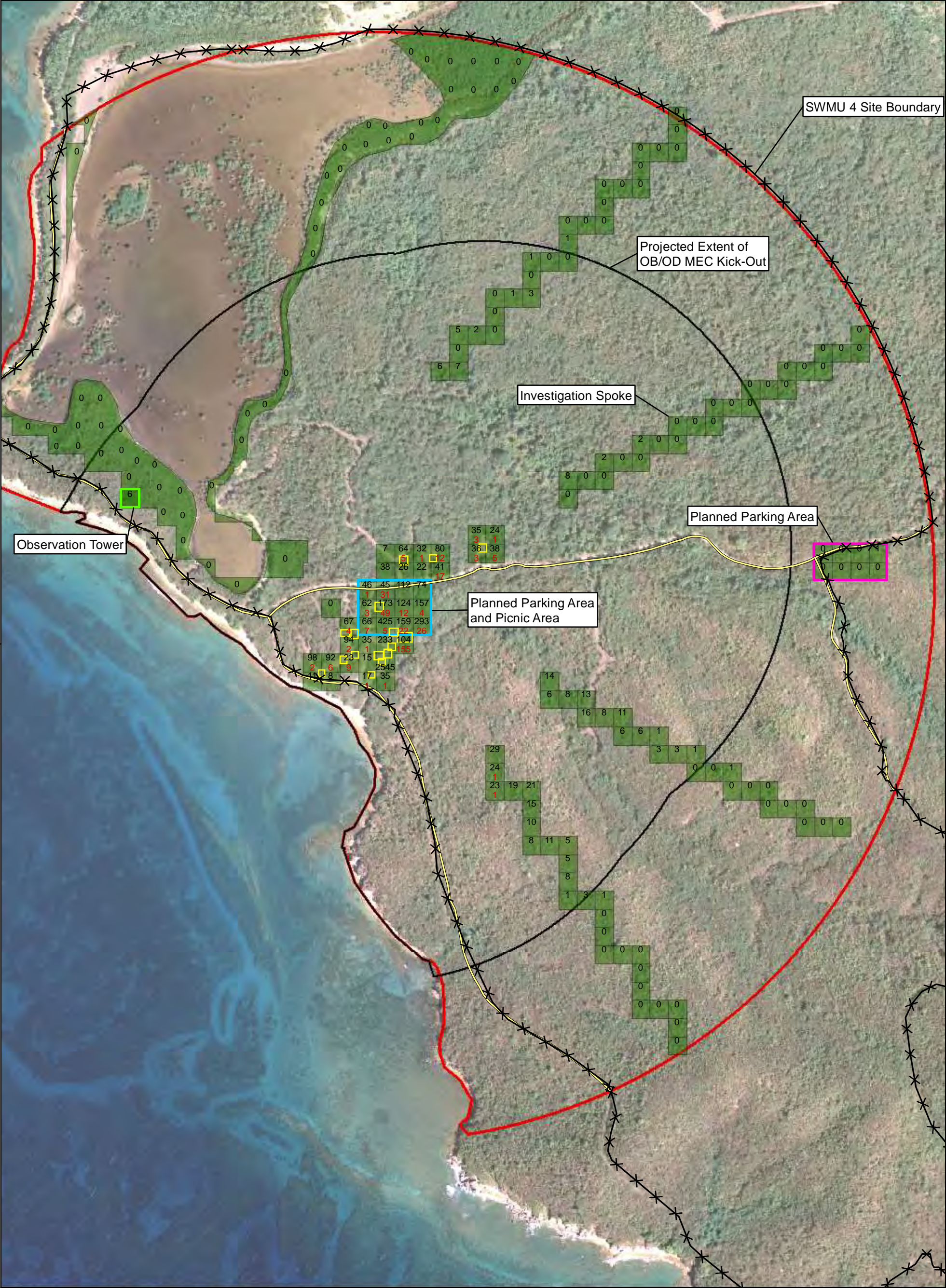
During and upon completion of the NTCRA:

- Excavations were backfilled following anomaly removal.
- All areas where vegetation was cut were allowed to naturally re-vegetate.

4.2 Summary of MEC/MPPEH Removal Associated with the RI, Roads and Beaches NTCRA, and 2015 NTCRA

MEC/MPPEH removal took place during the RI, 2009 Roads and Beaches NTCRA, and 2015 NTCRA. The cumulative information from these events is shown in **Figure 4-2**. These activities have accomplished the following:

- Munitions removal within an area of approximately 165 acres
- 121,114 MPPEH were recovered and processed. The MPPEH comprised:
 - 6,563 MEC, 94 percent of which were 20-mm projectiles
 - 70,671 MD
 - 43,880 RRD



- Legend**
- Fence Line
 - Road
 - MEC Cleared Area
 - OB OD Pits

Grid Label Description:
BLACK - Number of 20-mm Projectiles
RED - Number of other MEC

2007 Aerial Imagery

Note: The number of MEC also includes MEC removed from the OB/OD area.

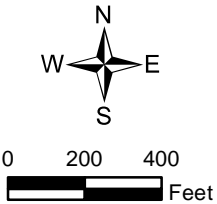
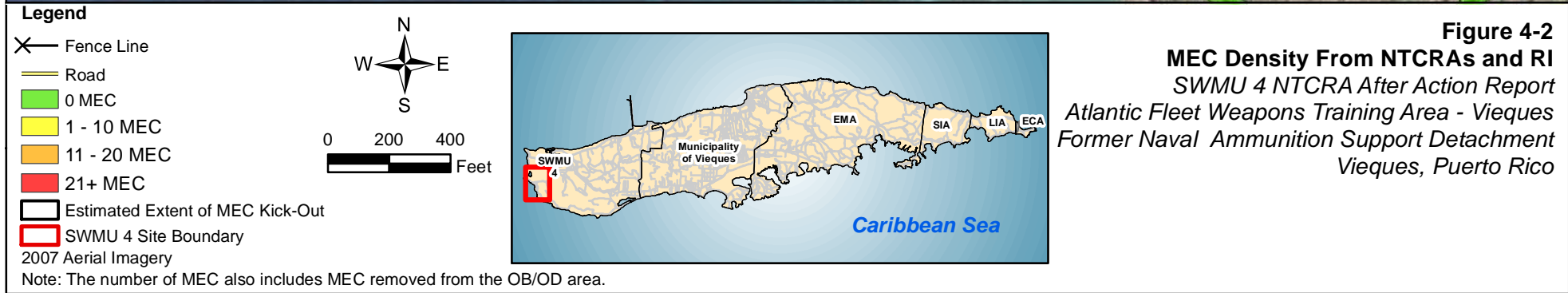


Figure 4-1
2015 NTCRA Densities
SWMU 4 NTCRA After Action Report
Atlantic Fleet Weapons Training Area - Vieques
Former Naval Ammunition Support Detachment
Vieques, Puerto Rico



SECTION 5

Demonstration of Completion

Performance results demonstrating that the munitions-removal objectives of the NTCRA have been met are summarized in **Table 5-1**.

TABLE 5-1
Removal Action Performance Results

| Objective | Performance Results |
|---|---|
| Reduce the potential explosive hazard associated with the areas intended for public use | MEC/MPPEH removal was conducted within the areas identified for the NTCRA (Figures 1-1 and 4-1). The QC procedures and QA inspections conducted ensured the removal action was conducted in a manner consistent with the procedures described in the NTCRA Work Plan (CH2M, 2014b) and the ESS (CH2M, 2014c) |
| Reduce the potential hazard associated with the areas likely accessed for land crabbing | See above |

SECTION 6

Future Activities

Prior to selecting the final remedy for SWMU 4 via a Record of Decision (ROD), the following activities may take place to facilitate public access to portions of the site and/or perform refuge management functions.

- USFWS may perform activities within the NTCRA areas (entrances, roads/trails, parking and picnic areas, observation tower), such as vegetation cutting and erection of structures to facilitate public use (e.g., observation tower), to prepare those areas for public access.
- The Navy will install warning signs and educational kiosks once USFWS performs the aforementioned activities.
- Any non-intrusive activity conducted by USFWS outside of the NTCRA areas (2009 and 2015) will require escort by a qualified UXO technician performing munitions avoidance.
- Any intrusive activity conducted by USFWS outside of the NTCRA areas (2009 and 2015) or below the depth of removal will require munitions/anomaly avoidance support by a qualified UXO technician.

SECTION 7

Community Relations

Community participation in the environmental restoration activities for the former VNTR includes Restoration Advisory Board (RAB) meetings, public meetings, public information repository, RAB and public comment periods, fact sheets, public notices, and a public website. The Community Involvement Plan (CIP) for Vieques is updated periodically to adjust to the needs of the program and the community and provides detailed information on community participation. The CIP can be found in the Administrative Record for Vieques. This NTCRA AAR will be included in the Administrative Record for the site.

SECTION 8

Certification Statement

On behalf of the United States Department of the Navy, I certify that this document memorializes the achievement of the NTCRA munitions-removal objectives, which allows for public access to the NTCRA areas within SWMU 4 at the discretion of USFWS and once the institutional controls are implemented.

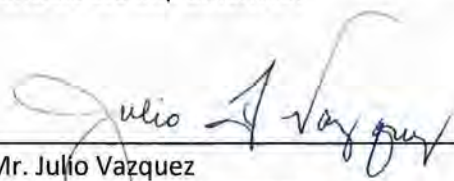
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Date: 2016.10.26 14:58:21 -0400

Mr. Daniel Hood
Remedial Project Manager
Naval Facilities Engineering Command, Atlantic

Date

Based on the information included in this After Action Report, EPA concurs that the NTCRA munitions-removal objectives have been achieved, allowing for public access to the aforementioned areas once the institutional controls are implemented.


Mr. Julio Vazquez
Remedial Project Manager
U.S. Environmental Protection Agency

11/1/16
Date

Based on the information included in this After Action Report, PREQB concurs that the NTCRA munitions-removal objectives have been achieved, allowing for public access to the aforementioned areas once the institutional controls are implemented.



NOVEMBER 1, 2016

Mr. Juan Babá Peebles
Remedial Project Manager
Puerto Rico Environmental Quality Board

Date

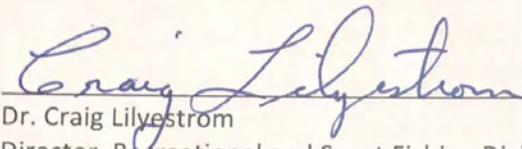
Based on the information included in this After Action Report, USFWS concurs that the NTCRA munitions-removal objectives have been achieved, allowing for public access to the aforementioned areas once the institutional controls are implemented.



Ms. Susan Silander
Remedial Project Manager
U.S. Fish and Wildlife Service

12/1/2016
Date

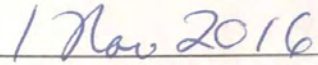
Based on the information included in this After Action Report, PRDNER concurs that the NTCRA munitions-removal objectives have been achieved, allowing for public access to the aforementioned areas once the institutional controls are implemented.



Dr. Craig Liljestrom

Director, Recreational and Sport Fishing Division

Puerto Rico Department of Natural and Environmental Resources



Date

SECTION 9

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Appendix A

Representative Photographs



Photo 1 – Vegetation cutting within the “spokes” at SWMU 4



Photo 2 – Mag-and-dig within the “spoke” at SWMU 4



Photo 3 – Large boulders exposed by vegetation cutting along a “spoke” at SWMU 4



Photo 4 – Planned western parking area at SWMU 4



Photo 5 – Erosion control measures along a “spoke” at SWMU 4



Photo 6 – Mag-and-dig around trees at SWMU 4



Photo 7 – Mag-and-dig along search lanes at SWMU 4



Photo 8 – Vegetation cutting at planned observation tower at SWMU 4



Photo 9 – Vegetation cutting in preparation for DGM survey at SWMU 4



Photo 10 – Biologist conducting survey for Cobana negra and the Puerto Rico boa along the lagoon fringe surrounding Laguna Boca Quebrada at SWMU 4



Photo 11 – Surface MEC removal in area to be DGM surveyed at SWMU 4



Photo 12 – DGM survey of planned eastern parking area at SWMU 4



Photo 13 – Excavation of subsurface anomalies at planned eastern parking area at SWMU 4



Photo 14 – Quality control of subsurface anomaly excavation at SWMU 4



Photo 15 – UXO Technicians conducting mag-and-dig of lagoon fringe at SWMU 4



Photo 16 – Excavating subsurface anomaly at the SWMU 4 lagoon fringe



Photo 17 – Land crab traps identified along lagoon fringe at SWMU 4



Photo 18 – Quality control following mag-and-dig at the SWMU 4 lagoon fringe



Photo 19 – MEC components (fuzes) recovered at the western planned parking area



Photo 20 – Deteriorated grenades identified at SWMU 4



Photo 21 – Mag-and-dig at SWMU 4



Photo 22 – Anomaly reduction in a demo pit near the planned western parking area at SWMU 4



Photo 23 – Mag-and-dig at SWMU 4



Photo 24 – An OB/OD location at SWMU 4 where mag-and-dig has been completed (stake marks center of OB/OD location)



Photo 25 – Material removed from OB/OD area at SWMU 4



Photo 26 – 20-mm projectiles recovered at SWMU 4



Photo 27 – MDAS, MD, and/or RRD recovered at SWMU 4 during the mag-and-dig and DGM anomaly removal activities



Photo 28 – MDAS, MD, and/or RRD recovered at SWMU 4



Photo 29 – MDAS, MD, and/or RRD recovered during the NTCRA at SWMU 4



Photo 30 – Team reacquiring anomalies at the planned picnic area at SWMU 4



Photo 31 – Mag-and-dig at the planned picnic area at SWMU 4



Photo 32 – MDAS, MD, and/or RRD recovered at SWMU 4



Photo 33 – Screening to remove small metallic items from excavated soil at SWMU 4



Photo 34 – Excavating DGM anomalies; flags mark the locations where anomalies have been identified through DGM and have been reacquired by the removal team



Photo 35 – Backhoe use in the planned picnic area at SWMU 4



Photo 36 – OB/OD location being excavated during mag-and-dig at SWMU 4



Photo 37 – Quality assurance checks of the excavated anomalies at SWMU 4